Cottage Life E-BOOKS

# COTTAGE TREES & PLANTS

## Keeping your forest healthy

Cottage Life

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# Introduction

The trees at our cottages are landmarks. There's the one by the water with the tire swing, the one the jays nest in, and the one the woodpeckers are perforating. We use them for shade, for climbing—and for firewood. Often we trim them, to keep them healthy or to open up the view; occasionally we have to remove them, when they threaten to fall where they'll cause damage. Once in a while, cottage trees annoy us, when they drip sap and "tree sweat." But most of the time, cottagers love their trees, and so we worry about protecting them from disease and injury. We wonder how to grow more trees and whether the fungus on them is harmful. And as much as we enjoy seeing beavers, we want to know how to keep them away from our trees.

Other plants—the smaller, herbaceous ones—fascinate us too. They're so varied that we constantly find new ones and want to identify them. We love knowing what to call them, by colourful common names and precise scientific ones. Unlike cottage animals, plants stay put, so we study them carefully. Why does this plant have no green colour, or such strange-looking flowers? How do we encourage more blueberries? Can we eat this fern? And some of these plants annoy us too. Namely, poison ivy.

Over the years, *Cottage Life* magazine has received many questions about cottage-country flora, and we've found botanists, horticulturists, arborists, and other "ists" who can provide expert answers. Here are some of the most intriguing questions and answers, with practical advice to help you nurture the forest at your cottage.

# *TREES*

# Planting New Trees

**We have a cedar tree at our cottage on Georgian Bay that drops millions of "seeds." I have collected two spice jars of them, as I would like to encourage the cedars to grow elsewhere on the property. What is the proper way to plant them? How long should they be kept dormant before planting? What about the procedures for other types of trees such as oak, maple, and pine?**
*—Chris Brown, Don Mills, Ont.*

The proper way to plant any seed is just the way nature would, according to Henry Kock, a horticulturist at The Arboretum at the University of Guelph. First, determine how the seed is dispersed naturally. Tiny cedar tree seeds, for example, are dispersed in cones that fall under the tree. In the natural world, the seeds lie on top of the ground all winter. Kock suggests you make a small bed, scatter the seeds in the fall, cover them with a light layer of sand, and let them lie dormant over the winter (or plant them in small clay pots in March, moisten them, put the pots in plastic bags, and keep them in the fridge for a month before planting outside). Then provide the same conditions you find where young seedlings grow naturally, paying special attention to protection and light. You may need to provide some shade over your bed, and cover it with chicken wire to keep animals away.

Watching cedars grow from seed takes patience. The seedlings will only grow to about 1.5 cm tall the first year, and will get to 2.5-3 cm the second season. After that, they'll start to grow more quickly. *—March 1996*

**We have a black walnut tree with lots of walnuts on it. How do I turn the walnuts into new trees to give to friends?**
*—Barb Kerr, Black Lake, Ont.*

Spread the black walnut love by planting the nuts directly into the ground in October or November, says Charity Hendry of the Ministry of Natural Resources' Ontario Tree Seed Plant in Angus, Ont. Plant them with husks—the green outer shell—intact, 4–5 cm deep in moist but well-drained soil. Or, you can store them in the fridge for four to six months (any longer and they'll lose their viability) then plant them in the spring. Before storage, remove the husks by tapping them with a hammer. Wear gloves for this: "They leak a horrible blackish-brown juice," warns Hendry. Useful if you're, say, staining furniture, but not something you want on your fingers or clothes.

You can also start the trees in pots for your friends to transplant in the spring. In this case, plant the nuts with their husks off. Make a hole in the soil only as deep as the nut is thick, push it down to secure it, then cover with a thin layer of soil. Water, seal the pot with plastic wrap to keep in moisture, and place in a sunny window. Then wait. You may not see a seedling for six months. When the plant starts to grow, remove the plastic, and water twice a week. In another six months, the tree will be ready to go in the ground.

Keep in mind that in Canada, black walnut trees mostly grow in southern central Ontario, and the farther north you go, the less likely they are to flourish because of a shorter growing season, says Hendry. Also, black walnut trees are messy.

"The large compound leaves and nuts can be a pain to rake up," says King Wright of King's Forestry Service in Port Carling, Ont. Furthermore, fallen leaves and roots leach a substance called juglone, which inhibits the growth of many other plants. So don't put this tree beside a vegetable garden or flower bed. *—April 2009*

# Cutting Old Trees

**How can I tell if a tree is strong enough to remain standing? If it's within falling range of the cottage, do I immediately remove it if I'm worried? I hate to cut down a tree when it's not necessary.**
*—Mike Orloff, Catchacoma Lake, Ont.*

We hear you, Mike. So does Sylvia Greifenhagen, a forester with the Ministry of Natural Resources' Ontario Forest Research Institute. "It's a really hard decision to cut a tree down. People get attached to them." But people get attached to their roofs too. If a tree could cause injury to people or property when it falls, scope it out to assess the risk. "And then you have to decide if you can live with that risk or not," says John McLaughlin, a forest research pathologist with the OFRI.

So how can you tell? Major tree defects are obvious, says Philip Adams, an arborist with Bartlett Tree Experts in Muskoka. At the top of the tree, look for an unhealthy crown (dead branches, lots of missing or small, off-coloured leaves); at the base of the tree, look for injuries, such as vertical cracks (from frost damage) or old wounds (from, for example, a backhoe hit when the septic bed was dug—*ouch*). A tree that's completely rotten inside but has several solid layers of wood on the outside may be perfectly stable, but a decayed tree with an old wound at the base has a weak spot where it could break.

And if you can't see any signs? "The problem is that a tree can look perfectly healthy, and it can still fail," Greifenhagen says. And a tree can *be* perfectly healthy, and come down: A tree without deep roots, such as a pine

on Canadian Shield bedrock, is at risk of getting blown over in a storm. So is a lone, unsheltered tree, especially if it used to have others surrounding it for protection; it's not as "wind firm" as it will be in a few years, explains McLaughlin. And a tree with poor architecture—say, one that is structurally unbalanced because a portion of branches has broken off—is a hazard too.

Whatever the tree's condition, "it does come down to making a judgment call," says McLaughlin. "If a tree is really big, really old, and hanging directly over your cottage…you may decide you're not okay with that." But if you're uncomfortable determining Old Branchy's fate yourself, ask an arborist. *—October 2009*

**The branches of our neighbours' tree obscure our view. Are we entitled to trim the ones that extend onto our lot?**
*—Linda Reid, via e-mail*

"It's a common-law principle," says Rusty Russell, a lawyer with the law firm Russell, Christie in Orillia. "You're entitled to remove the limbs trespassing on your land." But you can cut the branches only from the point where they cross your property line.

"By law, no one is entitled to a view," Russell points out. Don't fire up the chainsaw before talking to your neighbours; they may wish to prune the limbs themselves. If they don't and won't allow you to cut them, remind them of your rights, or ask your lawyer to write them a letter. But that's a last resort, Russell says. "As soon as you get lawyers into it, everybody bristles."*—May 2009*

**Last summer I hacked away at an old tree stump. At night, the wood chips glowed. What caused this?**
*—Ron Hay, Trent-Severn Waterway, Ont.*

No need to call Ghostbusters: A fungus that infests trees likely caused the glow, says Sylvia Greifenhagen of the Ontario Forest Research Institute. The phenomenon is called bioluminescence: the emission of light by a living thing.

She suspects your fungus was of the genus *Armillaria*, the most common group of glowing fungi in Ontario. Along with dead wood, *Armillaria* invades the roots of live trees, sometimes moving up through the stump and lower trunk, causing decay. “A healthy tree is usually able to keep the fungi at bay,” Greifenhagen explains, “however, if it’s compromised in some way, the fungus has a better chance of gaining a good foothold.”

The fungus sends out tiny, thread-like strands called mycelia to invade the wood; these glow. Researchers are still studying the science of glowing fungi, but they know that it involves luciferin (diabolical!), a light-emitting molecule apparently found in most organisms that bioluminesce, and luciferase, an enzyme that catalyzes the chemical reaction producing the light. Bioluminescent fungi emit light continuously, but you only saw it after you exposed the mycelia.

The light will last for a few weeks, says Greg Thorn, a biology professor at the University of Western Ontario, because the fungus needs moisture. “As the wood and the fungus dry out, the mycelia will stop glowing.”

Scientists know why some organisms bioluminesce. For example, fireflies signal mates. “But nobody *really* knows why the mushroom does it,” says Thorn. “What is a mushroom signalling?”

Possibly insects, at least in some cases of glowing fungi; one theory is that insects help to spread fungi spores. *—June 2011*

# Leaves, Sap, and Tree Sweat

**Sitting at my cottage early one evening after a hot day, my friend looked outside and said, “It’s raining.” But the sun was still shining and the sky was blue. What appeared to be rain was, in fact, liquid dripping from the needles of the white pines surrounding the cottage. It was water-like and not sticky, but there was a lot of it. The trees appeared to be sweating. What is this liquid?**
*—Jack Beattie, Cognashene, Ont.*

Without having witnessed it, none of the experts we contacted could say unequivocally why the pines were “sweating,” but the prevailing theory is that the source of the water is a biological process called “guttation.”

Guttation is a means for white pines and other vegetation to secrete water, explains Fred Beall, a research scientist with the Canadian Forest Service. Not to be confused with dew, which is condensed airborne water vapour, this liquid comes from inside the plant. From spring to fall, water moves into trees through the roots and out through the leaves or needles. It usually evaporates, or transpires, from the surface of the leaves except in times of high humidity, which inhibits transpiration. In this case, water is forced out through pores in the leaf tips. Guttation is commonly noted on grass and strawberry plants, says Beall. “When the ground and air are both quite wet, you’ll see a little drop of water form on the tip of a blade of grass.” The process usually only takes place very early in the morning, but with the right climatic conditions—moist warm soil and a humid evening—the secretions could potentially reach the point where the water appeared to rain down from

the needles.

Another possibility, suggested by Henry Kock, an interpretive horticulturist with The Arboretum at the University of Guelph, is that the trees were infested with pine bark adelgids, a European invader that feeds on the sap of white pines. “It’s a common phenomenon. The adelgids excrete a substance called ‘honeydew’ that drips to the ground,” says Kock. However, honeydew contains sugar so you would have noticed it was somewhat sticky, though not as sticky as sap. *—Winter 2001*

**I know most leaves should be left to decompose where they fall rather than raking them up. What about oak leaves, which don’t seem to decompose, but cover the soil in even thicker layers?**
*—Robert Fuhrman, Etobicoke, Ont.*

When we put your question to Henry Kock, a horticulturalist at The Arboretum at the University of Guelph, we weren’t surprised to learn that he sees the slow decomposition of oak leaves as an opportunity, not a problem. “Decaying oak leaves produce a more acidic forest floor,” he explains, and with that comes an opportunity to develop a woodland garden with plants such as native wildflowers, ferns, mosses, woodrushes, and hardy deciduous rhododendrons; all of them love the acidic soil and will grow right through the leaves.

If a woodland garden isn’t for you, the next best thing is to decompose the leaves more rapidly in a compost pile, turning them every two or three weeks to prevent fermentation, and adding blood meal to assist in the biological activity in the compost. But then you must evenly distribute the composted leaves back where they came from under the trees, Kock emphasizes. “We wonder why our trees are dying. Quite simply, they’re starving to death. All the fertilization in the world won’t replace the natural

decomposition going on under trees."—*October 1996*

**Along one side of my deck is a large, live pine tree that lost some of its upper branches last winter. The deck is constructed of pressure-treated wood and stained with a run-of-the-mill outdoor product. As spring turned to summer, the broken limbs started to drop sap onto the deck below. What can I do to the limbs to stop the sap from dripping, and do you have the name of an environmentally friendly product that will remove the sap from the wood in the deck?**
*—John McDonald, Bramalea, Ont.*

"Bleeding" is the tree's natural method of handling the wound and an important part of the healing process, explains Henry Kock, a horticulturist at the University of Guelph Arboretum. Eventually, the excess sap will ooze out and the tree will form its own seal from the inside. The good news is that since this healing process takes about a year, you may not have a problem next summer.

In the meantime, if you can reach the limbs, cover the wound with a square sheet of plastic and tie the plastic in place with rope. The plastic will act like "a disposable diaper," Kock says. He recommends against using pruning paint, also known as wound dressing. Cracks in the coating can allow moisture to penetrate the wound and increase the risk of decay.

Cutting the limb back to the collar at the trunk may also help, says Lewis Arnold of Shady Lane Tree Care in Newmarket, Ont. The sap will tend to bleed down the trunk rather than drip onto your deck.

If you can't reach the limbs, Kock suggests you simply intercept the sap. You could, for example, set up a cheap umbrella under the drip for the course of the year.

As for removing the sticky stuff from the deck, "it is always best to

remove sap from the surface of the wood by sanding for hardened sap, or by scraping for soft sap," according to our sources at Beaver Lumber. Solvents such as acetone tend to allow the dissolved sap to soak into the wood, and it will bleed back out when the temperature of the deck rises.

You may have to restain the deck in spots where the sap has been removed—or use a deck wash and restain the entire deck to get an even colour. In any case, Chris Henwood of Beaver's paint division suggests you consider coating the deck with a water sealant after staining. The sealant's waxy content and glossy surface may make it easier to remove the sap if you have a recurrence of the problem. —*Winter 1996*

# Lightning and Other Damage

**While splitting some logs that we cut from dead trees, we found one with an inner portion darker than its outer portion, as if the tree had been burned. What has happened?**
*—Marj Barnden, Go Home Lake, Ont.*

The tree wasn't burned. The darkened inner section of wood was most likely caused by a pathogen that got into the tree through an injury—probably a broken or badly pruned branch.

When a tree is wounded, decay organisms can get in through the opening and attack, explains John McLaughlin of the MNR's Ontario Forest Research Institute. The tree responds by producing barriers around the wounded area in an effort to "wall off" the tissue associated with the injury—in this case, the

layer of wood connected to the branch that was lost—so that future layers aren't affected. "It's sacrificing its old wood to keep its new wood protected," says McLaughlin.

This scientific theory of how a tree responds to injury and keeps decay from spreading is called "compartmentalization of decay in trees," or CODIT, says Ken Farr, a dendrologist (tree specialist) with Natural Resources Canada's Canadian Forest Service. It's a normal, natural defence mechanism that the tree has evolved, because it has no way of repairing or regenerating cells to heal an injury. "A tree can't grow new tissue in the same way that animals can," says Farr, "so it seals that part off."*—May 2012*

**About two years ago, several trees surrounding our cottage on Eels Lake, north of Apsley, were struck by lightning. A pine and a fir, both very mature, were left with long burns running down their trunks into the ground. The pine seems largely unaffected, but the fir has a dead area, extending from the top a third of the way down. Is there anything that can be done to save it?**
*—Chris Smith, Oakville, Ont.*

The burns you describe are actually physical openings in the trees, says Tim Meyer, provincial forest pathologist for the Ontario Forest Research Institute in Sault Ste. Marie. Often, when a tree is struck by lightning, it literally explodes from within. Its sap boils and the steam seeks the easiest way out along the grain of the tree, splitting it open. Being conifers, both your pine and fir are extremely tolerant to damage and, despite appearances, are continuing to grow. The problem now is that they're structurally infirm. "Think of a drinking straw," says Meyer. "It's an elongated cylinder that's very strong until something happens to stress its sides. A tree is the same—its strength is in the outer edges."

Superficial splits in tree bark can heal in a couple of years, says Scott Macleod, a technician with the Canadian Forest Service, also in Sault Ste. Marie. “But if it’s split badly enough, meaning it’s reached the cambium—the living layer of the tree—there’s not much you can do.” Decay will likely move in, destroying the tree from the inside out. And if the wound is large enough, it could interfere with the movement of nutrients up and down the tree. This might explain why the top portion of the fir is dead, though it could also be a direct consequence of the lightning strike. It’s possible, too, that the tree is suffering from an unrelated disease.

Without actually seeing them, no one can say how much longer either tree will live or whether your fir is dying of other causes. What is certain, at least in the case of the fir, is that you now have what Meyer calls a “hazard tree,” threatening at some point to topple over and, if it’s located close to your cottage, put people and property at risk. “If trees are that badly damaged, personally, I’d remove them,” he says. *—October 1997*

**There’s a damaged tree that stands next to our cottage and just touches the roof. I suspect the damage—a slash in the trunk about 10’ long, 3” wide, and 2” deep in the bottom third of the tree—was caused by lightning, how can I safeguard the cottage if it is hit again?**
*—Alex Hussel, Toronto, Ont.*

We asked Bill Chisholm, senior engineer/physicist in lightning phenomena for Ontario Hydro Technologies, who confirmed that the damage was caused by lightning. It’s “a classic fir tree hit,” he says, in this case a fairly minor one. According to Chisholm, the tall, slender trees around your cottage actually provide good protection for the building; it’s more likely that lightning will strike the trees than the cottage. However, he offers some suggestions for increasing your cottage’s lightning protection.

His main concern is to protect the roof from a “side flash,” a branch of lightning arcing from the tree to a nearby metallic object. Lightning generally seeks the path of least resistance and can punch a hole through a wooden wall to follow a path offered by your electrical or plumbing system. The contact with the wooden wall is where the main fire hazard lies, and the high voltage running through your electrical system can damage any electronics plugged in inside the cottage. Therefore, you want to ground any metal structures on your roof to provide a prepared path for the lightning to follow. Most cottagers should be able to do this themselves, Chisholm says. In general terms, here’s what’s required: Start by electrically bonding copper wire to the metallic structures on the roof, such as your chimney stack. Then run the copper wires down to a ground terminal.

The ground terminal is usually created by driving a metal rod into the ground—Chisholm suggests burying the ground rod near the septic bed as the soil tends to be deep and conductive there—but this rod should be separate from the ground rod for your electric service panel. In addition to the ground rod, for extra protection you can bond the ground wires from the roof and your electrical panel to the metal plumbing in your water system, which will lead the lightning away from the building.

The specific procedure is set out in the Canadian Standards Association (CSA) installation code for lightning protection systems. (Chisholm suggests cottagers follow the explanation and roof sketches in the CSA booklet on lightning protection.) However, making sure your wiring has low enough resistance to act as a proper ground can be tricky, and Chisholm recommends that you have the system checked by an electrical inspector once you’ve finished the installation. —*Winter 1994*

**I have noticed that the coniferous trees along the highways to our cottage are turning brown and seem to be dying. If you go 20 metres into the**

**bush, the trees are okay. Deciduous trees do not seem to be affected. I have not seen this in previous years, leading me to assume that it is something on the road that is killing these trees.**
*—Alain Aeschelmann, Monck Lake, Ont.*

Road salt is the main reason large numbers of roadside conifers turn brown. Last winter, there was more snow than in recent years so road crews used a lot more salt to clear the pavement. (One Ministry of Transportation official estimates a 30 per cent increase.)

Spray from the salt lands on the needles and desiccates them, a problem compounded by the fact that the roots can't draw water from the frozen ground to replenish the foliage. Eventually, the needles dehydrate and die. If enough branches are affected, the entire tree can be killed. Come the spring thaw, an excess amount of salt can similarly dry out the tree's roots, also with potentially fatal results.

A good indicator of salt damage is if trees on one side of the road appear worse than the other. "Because we get northwest winds in the winter, the salt spray tends to blow to the east so the trees on the east side of the road are mostly affected," explains Alan Watson, director of the University of Guelph's Arboretum.

Deciduous trees also suffer salt damage, says Barry Smith, a forest health monitoring officer with Natural Resources Canada, but the results aren't as noticeable. "With hardwoods, it kills the branches so the leaves never come out. They're just bare and everybody's seen lots of bare branches."

A mid-winter thaw could also result in brownish evergreens. "The top of the tree thinks it's spring but the roots are still frozen," explains Smith. The leaves begin the natural process of releasing moisture, but the liquid is not replaced. This happens even in the densest bush, but roads exacerbate the condition. The asphalt is warmed by the sun, which in turn warms the air. The heated air then moves up and down the corridor of roadside trees. In

most cases, the trees are not permanently harmed by “winter drying” as the dead needles will drop off and be replaced by healthy new ones. If, over the course of the summer, you noticed the presumably dead trees starting to come back to life, winter drying is likely the culprit. —*October 2001*

# Bumps, Berries, and Growths

**In spring, our oak trees have some branches covered in small, brittle bumps that leak a lot of sap. If "popped," they leak out yellow "pus." What is this?**
*—Liz Hollyer, Go Home Lake, Ont.*

Your oaks are infested with lecanium scale, a type of insect that sucks out the tree's cell contents using a stylet, a hard, sharp anatomical instrument that works "like a drinking straw," explains John McLaughlin of the Ontario Forest Research Institute. The bumps are the protective shells of the females. As the females mature, the shells get larger and larger. The "sap" is fluid excreted as they feed, and the "pus" you get when you pop the bumps is—*yarf*—their innards.

Males are mobile, but the sedentary females spend their lives in one spot,

eating and laying eggs, until they harden in place and then die. (There's probably a lesson here. Get more exercise?)

According to Kathryn Nystrom, an insect identification officer with the Great Lakes Forestry Centre in Sault Ste. Marie, a mature, strong oak will probably survive a scale infestation despite some branch and twig dieback. But it could kill a small or newly transplanted tree.

"If a tree's small enough, put on your gardening gloves and start squishing," she advises. If you've got to treat a big tree, or several trees—or if the idea of crushing bugs by hand is too gross—you can buy dormant oil spray from a farm and garden supply store. The oil coats the bugs and eggs and suffocates them. Apply it in the spring, before leaf-out. —*April 2011*

**The tree in front of our cottage on Manitouwabing Lake has always bloomed, but never quite as fully as it did last year. When the berries come, the tree fills up with birds, especially cedar waxwings. Can your experts tell us what kind of tree it is?**
—*Rosemarie Moore, Waterloo, Ont.*

Henry Kock, a horticulturalist at The Arboretum at the University of Guelph, identified the tree in your photos as an *Amelanchier arborea,* commonly called downy serviceberry. The primary clues are the white flowers, the silver-grey leaves (which Kock notes are slightly folded and usually very hairy while the tree is flowering, but will rapidly become green and lose their downiness), and your comment that the tree is filled with birds. It's not a rare plant, he says, but it's significant in Ontario because it provides an early source of fresh fruit for songbirds such as cedar waxwings.

Kock wasn’t surprised your tree blooms so profusely. “At the size the tree has grown to, you would normally expect it to bloom prolifically,” he says. “It’s a beautiful species that’s not used enough in the landscape, and is often not available at nurseries because the seeds are so hard to collect; the birds pick all of the fruit before it is ripe.”*—May 1996*

**We have always given our children the blank canvas of tree fungus. Now we have grandchildren, and last summer proudly brought out a new batch for the little ones to draw on. Our daughter-in-law was horrified and refused to allow anyone to touch the fungi because she thought they were dangerous. Is there any danger to children using these fungi? I would love to add to our collection.**
*—Maureen Edge, Ottawa, Ont.*

Unless you count the usual arts-and-crafts mishaps (spilled paint on the sofa cushions!), and assuming you’re giving the young ’uns a child-friendly instrument to etch their designs into the soft flesh of the fungus—a toothpick and not, say, a scalpel—then no need to worry: There is no danger in

collecting, handling, or manipulating *Ganoderma applanatum*, or Artist's Conk.

"They're absolutely safe," says Jean-Marc Moncalvo, senior curator of mycology at the Royal Ontario Museum. The fungi may release spores when they're fresh, but the spores are not harmful.

In fact, says Moncalvo, mushrooms in the genus *Ganoderma*—it has more than 80 species—have been used historically in Asian medicine. Recently, they've been studied for therapeutic benefits, including their antiviral, antibacterial, and anti-cancer properties.

Medina Genge, an artist with a studio in Middle Sackville, NS, has been painting on dried Artist's Conk for years. "I've never had any problems," she says, adding that because they only sprout on old or decaying hardwoods, you're not likely to mix them up with any other types of fungus when you're collecting them. "They grow on dead trees. So it's pretty obvious."—*October 2011*

**We have a balsam fir at the entrance to our cottage lot. Our neighbour noticed a second, small tree growing out of it. What is it?**
*—Pat McIntyre, Lake Wilbermere, Ont.*

Your tree's dense, bushy Mini-Me is actually a growth caused by infection from a fungus, explains John McLaughlin of the Ministry of Natural Resources' Ontario Forest Research Institute. The fungal pathogen, *Melampsorella caryophyllacearum*, a type of rust fungus, jumps back and forth between a host and an "alternate" host—typically a deciduous or coniferous tree and a shrubby, leafy plant.

In this case, we can tell from the photos you sent that it's a balsam fir and a chickweed. It works like this: Let's say the balsam fir was the original host (though it's impossible to know for sure where the fungus started, says McLaughlin). The disease develops in the tree and over-winters. In mid-summer, spores that have formed on infected needles are dispersed by the wind, landing on a chickweed plant. The fungus then matures and releases another type of spore the following spring. That spore lands on a different balsam fir, or possibly the same one.

The infection's life cycle includes five types of spores (two form on the balsam fir needles and three form on the chickweed). As the infection progresses, it causes the fir to sprout a growth called yellow witches' broom.

Some witches' brooms can grow as large as a couple of metres in diameter, though most usually measure a half to one metre. You may notice that in early summer your fungus has a yellow-orange appearance; this is when the pustules containing spores burst open. Sounds nasty, yes, but there's no need to worry, McLaughlin says. "It's a natural part of the system out there, and it seldom causes damage," though it might make your tree more prone to other fungal decay, and more likely to break. This particular rust fungus can only affect balsam fir and chickweed, so there's no danger that it will spread to other plants on your property. —*June 2009*

# Trouble With Beavers

**Our cottage on Gloucester Pool has been in the family for 40 years. The oak trees have been there for many more years. After all this time, the beavers have decided to start chewing the bark off the trees. What can we do to protect the trees without hurting the beavers? We have to do something; two of the trees are where we hang our daughter's swing. More importantly, the other two trees are for the hammock!**
*—Kent and Sydney Weale, Mississauga, Ont.*

Consider yourself lucky. Beavers usually chew right through a tree but, since your oaks are still standing, MNR biologist Jan McDonnell speculates that the beavers worked their way through the bark and found the wood underneath to be too hard. Oak isn't normally a favourite tree of beavers, she notes. They usually prefer softer species such as poplar, red maple, and white birch.

Since your goal is to protect a few valued individual trees, the best solution is to wrap the base of the trees loosely with chicken wire, hardware cloth, or sheet metal. You can remove the protective cover if and when the beavers move on. *—June 1997*

**We're having trouble with beavers cutting large numbers of trees, ranging in size from 11/2" to 5" in diameter. They've also built a lodge on our shoreline. I have two questions: How can I protect other trees from being cut? And if I break the lodge and remove it, will the beavers rebuild?**

*—Bruce Moore, Ottawa, Ont.*

When the large number of trees under siege from beavers makes wrapping each one with chicken wire impossible, the only alternative is to live with the damage or trap the beavers. Unfortunately, if you decide to take action, it may be more humane to kill the animals than to relocate them, says the Ministry of Natural Resources' Jan McDonnell. Beaver families (usually an adult pair, newborn kits, and the kits from the previous spring) defend their territory aggressively, and a beaver that is trapped and relocated into an area already occupied by beavers would likely be attacked and killed or driven away. (McDonnell notes that beaver families need to be .06 km–2 km apart on the same watercourse, depending on the quality of the habitat.) Destruction of wild animals is allowed under Ontario's *Game and Fish Act* when they cause property damage—such as flooding, washed-out roads, downed trees, and so on.

The MNR recommends enlisting the assistance of a licensed trapper so the pelts can be saved, and doing the trapping in the fall when pelts are prime.

As for breaking up the lodge, McDonnell says she wouldn't even attempt this labour-intensive task. "Many lodges are very large and inaccessible," she says. "It would be a huge, backbreaking effort" and, as you've suggested, there's no guarantee that the beavers won't rebuild. In fact, even if you trap and remove your nuisance beavers, if your cottage is in the middle of great beaver habitat new beavers will eventually move in to take over the territory and will likely build a new lodge. *—August 1997*

**Will beavers eat conifer trees?**

*—Karl Dennhardt, Kahshe Lake, Ont.*

Yes. But only when desperate, the way you might eat a hot dog from a gas station. Conifers are "emergency food" for beavers, says Franco Mariotti, a

staff biologist at Science North & Dynamic Earth in Sudbury. Mariotti suspects the tannins and sap in the trees are deterrents to the beavers. “The bark probably tastes bad,” he says. They prefer to chow down on hardwoods such as birch and poplar, as well as aspen, alder, and willow—though they have been known to eat all sorts of plants, including grass and poison ivy.

In the summer, they like aquatic vegetation such as cattails and lily pads, which Mariotti has seen them fold, like tortillas, before devouring.

If beavers are chomping on your conifers, the damage will show the “typical chewy pattern in an hourglass shape around the trunk,” says Chris Heydon, a fur program biologist with Ontario’s Ministry of Natural Resources. Or it may be a little less obvious, Mariotti says, until you look closely for teeth marks at beaver height, about half a metre from the ground.

If the beavers are eating conifers, that “tells a whole story,” Mariotti adds. “They’re out of normal food, and they’re likely to move on in the near future, since it’s questionable whether they can survive on conifers alone.”—*Winter 2011*

# *PLANTS*

# Boosting Blueberries

**We have blueberry bushes at our camp near Sudbury. I picked about a cup and a half of blueberries the first summer after we bought our place several years ago. Every year since, there have been fewer berries. Why? And is there anything I can do to boost the crop?**
*—Deborah Pero, Whitefish, Ont.*

You might be tempted to blame thieves (bears, birds, the neighbours), but the two most likely culprits are spring frost—which kills blooms early, so they never turn into berries—and the cruel, cruel ravages of time.

"As the plants get older, they're less productive," says Pam Fisher, a berry crop specialist with the Ontario Ministry of Agriculture, Food and Rural Affairs. Fruit buds are smaller, more vulnerable to damage, and tougher to harvest—which is why five years ago you were making pies, and now you can barely garnish a piece of cheesecake. Life is not fair.

But hang on: You can turn back the clock on your plants. "You could renovate them," says Kevin Schooley, the executive director of the Ontario Berry Growers Association. This means removing the parts of the plant above the ground, so the roots will generate brand-new growth.

Wild blueberry growers revive their stands by burning or mowing every two or three years; you could prune yours with a lawn mower or hedge clippers. Do this in early spring, before you see buds. Go slowly and cut close to the ground, but make sure you don't damage the roots. Since you won't see a berry crop the same year you prune, Schooley recommends only cutting a third of the patch at a time. *—Summer 2011*

**Our family used to enjoy a regular, abundant crop of blueberries each summer at our property on Georgian Bay, a few miles south of Parry Sound. The bushes remain; however, they have not borne fruit since a summer of very hot, dry weather about 15 years ago. For several years we hoped the plants would recover on their own, but since so much time has passed this seems unlikely. The bushes are located on a rocky peninsula which juts out from the property and is fairly exposed to the elements. Around the same time we stopped getting blueberries, two large pine trees near the blueberry patch came down. Apart from that, there have been no changes that we can think of. What happened and how can we bring back the blueberries?**
*—Joanne Wilson, Etobicoke, Ont.*

Through blueberry bushes can live as long as 150 years, fruit is produced in the greatest quantities on younger and especially second-year shoots. If that new growth, which sprouts annually from underground stems and suckers, is slowed down by a lower water table brought on by a prolonged drought or some other change to the habitat, the blueberry crop will be retarded until the patch recovers, explains Brenda Chambers, a forest ecologist with the Ministry of Natural Resources in Thunder Bay. This is particularly noticeable in rocky areas around Georgian Bay where the soil cover is thin. And though blueberries love sunshine and need a lot of it to flower and fruit, the pine trees that came down may have been providing the berries with necessary relief from the scorching heat.

Other factors that affect blueberry crops include severe winters with too little snow cover to protect the roots, and a decrease in sunlight to the patch. There is also a theory that blueberries are pollinated by black flies. If that’s so, then any spraying program in your area that reduced the back-fly population may have also cut down on your blueberry crop.

Commercial blueberry producers rejuvenate their blueberry bushes by

pruning them with a controlled fire. But this method is not recommended to cottagers, since it is easy for such a fire to get out of control. Instead, prune the bushes back with a heavy-duty lawn mower or weed whacker, leaving about five centimeters of the plant above the ground. “You’re trying to bring back the juvenile state of the plant,” explains Shooley, so it will bear fruit. You should notice a rapid resprouting from the buried stems within two weeks. —*October 1992*

# Ferns and Mosses

**Our place in Marten River is surrounded by ferns, which grow prolifically in the bush. Is it possible to pick and eat the fiddleheads in the spring?**
*—Patricia Power, Marten River, Ont.*

There are many ferns that produce young shoots, or fiddleheads, that are sufficiently tender to eat, according to Henry Kock of the University of Guelph's Arboretum. One species that provides a large, particularly tasty fiddlehead, he says, is the ostrich fern (*Matteuccia struthiopteris*), which grows in damp areas such as ditches, forest openings, and along forest edges. Its stalk is about the thickness of a pencil and, in the fiddlehead stage, the head is as big as a two-dollar coin or larger, but its most recognizable feature is the fruiting frond it puts up in mid-summer. The distinctive frond turns black and stays standing all winter long.

As with any wild plant, however, Kock warns cottagers to make a positive identification of the fern using a field guide before harvesting and eating it. At first glance, for example, poison hemlock (*Conium maculatum*) appears to have fern-like leaves, though it doesn't have a fiddlehead structure. "Get to know a plant and its site and become familiar with it before harvesting," he cautions.

Kock suggests harvesting the fiddleheads when the shoots are 10–15 cm tall but there are still no expanded leaves—probably in late May or early June in your area, and in early May in cottage areas farther south in Ontario. Remove all the brown chaff before boiling or steaming the fiddleheads; Kock

likes to stir-fry or sauté them with garlic and lemon juice.

While it's tempting to gather wild plants, remember when you harvest fiddleheads—which are the fern's leaves and an important part of its food system—that you're reducing the plants' ability to photosynthesize. Be sure to harvest *frugally* from your own property, or with permission only from other private property, and don't take all the fronds from one crown. As Brenda Chambers, a Ministry of Natural Resources forest ecologist and coauthor of *Forest Plants of Central Ontario,* points out, "Every time we clip a wild plant we're altering the natural habitat."*—May 1997*

**Our dock, the steps leading to the dock, and even parts of the boathouse have mosses and lichens growing on them. Is there an environmentally friendly way of killing these growths and preventing them from coming back?**

*—Dan Brintnell, Lake Rosseau, Ont.*

Mosses and lichens are hardy—that's why they're all over cottage country—and the only earth-friendly way to get them off your wood is elbow grease. "A good old-fashioned scrubbing brush and plain lake water," suggests Paul Morris, group leader for durability and protection at FPInnovations, the forest products research institute. Unfortunately, this won't keep the mosses and lichens from returning. Rotting wood—like the kind you might find in an old dock—is "a perfect substrate for mosses," explains Dr. Irwin Brodo, lichenologist emeritus at the Canadian Museum of Nature in Ottawa. "And the lichens are growing on the wood simply because the wood makes a good place to live." Both lichens and mosses grow on healthy wood too, so their presence doesn't always mean your dock or boathouse is rotting. And the growths won't *cause* your wood to rot, says Morris, but they absorb moisture, making rot more likely. Also—wipeout alert—lichens lead to slippery surfaces. "Wet lichen can give way like a

banana peel," warns Brodo. (If you stepped on wet moss, you'd likely just dislodge it.)

Lichens grow at a molasses-like rate, so once they're scraped off, you won't need to scrub again for a few years, says Brodo. But in moist, sunny, and warm conditions, mosses grow faster, and might need removing once or twice per season, says Jennifer Doubt, chief collection manager of the Botany Section with the Museum of Nature. Doubt suggests making the wood less hospitable to mosses and lichens by keeping it drier (trim back trees, for example, to allow more sun on the area), or replacing rotted boards. — *Summer 2009*

# Plant Problems and Solutions

**We've heard that poison ivy will only cause a rash if the leaves or branches are broken, and that simply brushing against the plant won't cause a reaction. Is that true?**
*—Keith Richardson, Toronto, Ont.*

Poison ivy does not have to be broken to inflict the itchy rash; touching any part of the plant—the roots, the stem, leaves, flowers, or white berries—will release its irritant, a resin that causes uncomfortable blisters. To make matters worse, says Jack Alex, an environmental biology professor at the University of Guelph, poison ivy's "poisonous" resin remains active at all times of the year and even in dead plants.

You can also get the poison ivy rash even if the plant doesn't touch your skin. Resin that gets on clothing—shoes, hiking boots, and trouser cuffs, for example—remains active indefinitely as long as the clothes aren't washed, so wearing them even as long as a year after the initial contact could cause a rash. Although animals don't get a reaction to the resin, you're likely to break out if you pat your dog after it's romped through the stuff.

Once you have the rash, however, there may be some consolation in knowing the fluid in the blisters is unlikely to spread it further. And once you've thoroughly scrubbed under your nails, you cannot transfer the rash through contact like shaking hands or sharing a towel. The resin bonds like glue to skin and cannot be transferred, but it does not bond the undersurface of nails and must be scrubbed away. *—August 1992*

**We have a problem with poison ivy that follows our water line and is thickest by our lake. Our daughter tried to dig it out but developed such a terrible rash—even though she was clothed from head to toe—that she finally had to be treated with cortisone. Is there anything we can spray on the plant to get rid of it without endangering plants or wildlife, or affecting the water? We have also been told that the fluid from in the blisters from poison ivy cannot spread the rash, but, in our daughter's case, the rash definitely spread when the fluid came into contact with other parts of her body. If the fluid can't spread the rash, why did this happen?**

*—Maureen Marshall, St. Catherines, Ont.*

There are a number of herbicides on the market that are registered for poison ivy control. Charles Zubovits, a pesticides officer at the Ministry of the Environment and Energy, suggests you try Roundup (the active ingredient is glyphosate), a Green Cross product, because it is easy to find and effective, has a very low toxicity for the applicator, and has a low impact on the environment. "If some small amount gets into the water, there is no environmental damage because it's an organic acid that loses its effectiveness when it's diluted," he explains.

Roundup is absorbed by the leaves and moves through the stem and roots of control the entire plant. Any spray or "drift" from the pesticide will affect vegetation other than poison ivy, however, so be careful to apply it on a windless day and avoid spraying non-target plants.

It is generally accepted that, by itself, the fluid in poison ivy blisters will not spread the rash. However, Carole Ann LaCroix, of the University of Guelph's herbarium, points out that if the blister contains any residue of urushiol, the active ingredient that causes the rash, it can be spread by the fluid and cause further irritation.

The folks at Health Canada's Pest Management Regulatory Agency note

that the skin absorbs the urushiol within the first three minutes of contact. You can minimize the severity of the rash and prevent the spread of urushiol to uninfected areas by washing with soap and cold water; hot water tends to open the pores and increases the chances of the urushiol being absorbed deeply into the skin.*—August 1996*

**At my Weslemkoon Lake cottage, I have a pontoon boat that has indoor-outdoor carpeting on the deck. My problem is that I have plant life growing on the carpet, apparently from soil and wind-blown seeds that are deposited there. I vacuum diligently, but the plants are undaunted, especially where the carpeting meets a vertical surface such as the seats. I believe that household bleach would kill the growth, but it would also bleach the blue carpeting and perhaps ruin it. Do you have any suggestions?**
*—Jack Dempsey, St. Petersburg, Fla.*

We talked to experts at Sylvan Marine, a pontoon boat manufacturer, and the marine carpet manufacturer Ozite Corp., but none of them had encountered the plant life other than mould and mildew growing on carpets. However, they did note that it is not unusual for dirt to accumulate at the edges of carpet, particularly where it meets a vertical bulkhead or seat, and this area requires extra cleaning vigilance. You may have to scrub the carpet with soap and water, or even a heavy-duty carpet cleaner, to be sure you remove all the dirt. Barry Bray at Barry's Vehicle Upholstry in Mississauga, Ont., suggests blasting the area with water from a high-pressure hose to blow out the dirt.

Bleach may temporarily yellow the carpet, but it would probably not discolour it permanently. That's because the pigment is actually part of a resin which makes up the carpet, according to Richard Hanson of Ozite's research and development department. However, over time bleach will break

down the carpet fibers.

To inhibit any regrowth, Hansen suggests you follow up your cleaning regimen with a disinfectant such as Lysol. The disinfectant shouldn't affect the colour of the carpet either, but, as a precaution, Hason advises first testing it on a small out-of-the-way section. And of course, as when using any cleaner, you should do your work well away from the water's edge. Remove the carpet from the boat to clean it, or do your cleaning when the boat has been hauled away from the lake. —*June 1993*

**We have a flat, sandy lot at the cottage. Is there any vegetation that will grow in very sandy soil? I'd love to see my vacuum bag empty of the pounds and pounds of sand being tracked inside.**
—*Cheryl Rowan, via e-mail*

That much sand can't be good for the vacuum. And that much vacuuming can't be good for your tan! But don't worry: Lots of vegetation will grow in sand. First, do some recon. "Look to see what's growing well in the natural areas around your cottage," says Lorraine Johnson, author of *100 Easy-to-Grow Native Plants*. In general, for exposed sandy areas that get a lot of sun, she recommends a spreading ground cover, such as juniper, native wild strawberry, pearly everlasting, or prairie smoke. These plants should all help hold the sand in place.

Also, check with a local native-plant nursery. Karen Landman, an associate professor of landscape architecture at the University of Guelph, suggests Grand Moraine Growers in Alma, Ont., which has an online catalogue that lists plants suitable for many types of soil conditions, habitats, or purposes.

Unfortunately, ground cover isn't great to walk on, says Johnson, so also consider installing a boardwalk or a path with concrete pads or flagstones. —

*April 2012*

**I’m curious to know a bit about installing a sod roof at my cottage. What can you tell me about them? Are they practical in our climate?**
*—Mehnaz Malik, Toronto, Ont.*

Yes, sod roofs are an option for cottagers. In fact, sod is just one type of “green roof” that uses plant material—including wild grasses, shrubs, and even trees—instead of the more traditional shingles, tiles, and shakes for roof coverings.

The benefits of green roofs include increased insulation properties, longer roof life, and low maintenance, not to mention the amazed “oohs” and “aahs” of cottage visitors.

Green roofs have a long history, from ancient Roman rooftop gardens and Viking shelters to Canadian pioneer homesteads. These days, there is renewed interest in using organic materials on roofs. The Norwegian cottage magazine, *Hytteliv*, regularly features ads for sod-roofed cottages and various European governments have passed laws requiring their use in urban developments to take advantage of their ability to improve air quality, reduce greenhouse gases, and contain storm-water runoff.

Closer to home, the architects at Blue Sky Design have been designing sod-roofed homes and cottages in British Columbia since the 1970s. The Toronto-based firm Shim-Sutcliffe Architects has designed green-roofed cottages and even boathouses in Ontario cottage country. Adding momentum to the development of the industry is a study released by the Canada Mortgage and Housing Corporation (CMHC) that supports the feasibility and environmental benefits of green roofs.

Their biggest drawback is the weight of the material. Wet soil weighs approximately 1,600 kg per cubic metre (100 lbs per cubic foot), so creating a

green roof involves more than simply dumping dirt and seed on the sheathing. Steven Peck, co-author of the CMHC report, says this can be a concern for retrofit construction, but “if you’re building a cottage from scratch, then you just design the structural capacity of the roof accordingly.” In either case, modern installations use an artificial growing medium—instead of soil—to help reduce the weight load. —*March 2000*

# Plant Mysteries

**Last July we found this plant in the woods on our property near Torrance, Ont. What is it?**
*—Donna Di Lello, Gullwing Lake, Ont.*

That's *Conopholis americana*, a.k.a. squaw root, cancer root, or bear corn, a parasitic plant that steals nutrients and water from the roots of its host trees, usually red oaks. Conopholis is a holo-parasite, says Sasa Stefanovic, a professor in the department of ecology and evolutionary biology at the University of Toronto. That means it has no chlorophyll and can't produce any of its own food through photosynthesis. (Hemiparasites, such as mistletoe, on the other hand, do photosynthesize for at least one stage of their life cycle, but they get nourishment from their hosts as well.)

The white balls on the plant are berries. In May and June, the plant has yellowish or cream-coloured flowers. Not the prettiest specimen while in its prime, as it ages, squaw root dries out, turns brittle and brown, and looks like a pine cone. *—May 2012*

**This plant recently appeared on a small part of our property. What is it?** *—F. Wunderlich, Tedious Lake, Ont.*

That's *Monotropa uniflora*, the waxy, translucent, usually all-white plant commonly called Indian pipe. You may have never seen it at the cottage before because it doesn't always grow in the same spot from one year to the next. Indian pipe doesn't contain any chlorophyll. Instead of drawing energy from the sun, it steals nutrients, water, and sugars from fungi—common white and red mushrooms—that are already in a symbiotic association with other plants or trees through their roots. This mutualistic fungus-and-tree relationship is called a mycorrhiza: The fungus gets carbohydrates, which the tree produces through photosynthesis, and the tree gets easier access to

nutrients and water, absorbed from the soil through the fungus roots. Freeloading Indian pipe taps into this association and takes water and nutrients from the fungus, as well as siphoning off sugars the fungus took from the tree. Indian pipe doesn't harm the fungus or the tree, but since it doesn't give anything back, it is considered parasitic—directly on the fungus and indirectly on the tree.

The plant has mooched off fungi for so long, "it has lost its ability to photosynthesize," explains Tim Dickinson of the Royal Ontario Museum's Green Plant Herbarium. So it can grow in dark places, and the stem is covered with scales, instead of leaves.

Each Indian pipe plant produces a single bloom between June and September. As the fruit ripens, the nodding flower straightens up and the stalk turns black. It also turns black when handled and oozes clear, gelatinous goo if picked. *Yick.—May 2010*

**We'd like to identify a plant that grows among the wild strawberries all over our property where fields have reverted to bush. Do any organizations or groups offer plant identification services?**
*—Ruth Morrison, Etobicoke, Ont.*

There are a number of places to go for plant identification in Ontario, including some university haberia (at the University of Guelph, for example). Henry Kock, a horticulturalist at the University of Guelph's Arboretum, suggests that cottagers first contact local naturalists for help. To find out about a naturalist group in your area, contact the Federation of Ontario Naturalists.

From the information we sent them, the folks at The Arboretum were able to narrow down your mystery plant to either common cinquefoil (*Potentilla simplex*) or rough-fruited cinquefoil (*Potentilla recta*). The distinguishing

features relate to the plant's "hairiness," and how far up the leaf its teeth begin. As there are well over 20 characteristics necessary to the identification of plants, Kock emphasizes the importance of complete specimens, including a branch with leaf material and either the flower and fruit attached, plus a description of the plant's size, the area it grows, and the kinds of plants growing near it. Other tips from Kock: Provide lots of detail ("Brevity is not the point when it comes to identifying plants," he says); and never pack specimens in plastic, which causes them to decompose. Instead, dry them between sheets of newspaper or blotters, and pack between pieces of cardboard. *—May 1995*

**While walking around at the cottage last fall, we noticed several bulges the size of ping-pong balls in the weeds. Can you tell us what they are?**
*—Dean Ryan, Ajax, Ont.*

They are the insect world's equivalent of incubators. A variety of insects, including certain species of flies, wasps, and caterpillars, will make small incisions on plant stems or leaves and insert an egg. The plant reacts by

creating a growth known as a “gall,” says Chris Darling, curator of insects at the Royal Ontario Museum in Toronto. The gall provides food and shelter for the egg while it develops into a larva. “The most common galls people see are on goldenrod,” says Darling. “Those are caused by a fly, *Eurosta solidaginus*. It’s also called goldenrod gall fly.”

But galls don’t always provide a safe haven for the larvae inside. Their high visibility, particularly against a snowy winter backdrop, makes them an easy target for woodpeckers and chickadees. As well, there are a number of insects, called parasitoids, that prey on the maggots inside the galls. Certain wasps, for example, will lay their eggs *inside* the resident maggot. When fully developed, they’ll eat their way out of host and home.

While the round gall you spotted was likely made by the goldenrod gall fly, others found on stems can be spindle-shaped or elliptical; there’s even one, which grows on willow leaf stems, that looks like a pine cone. The vast majority of galls, however, are found on plant leaves, in the form of small bumps. *—October 2000*

# About the Author

*Cottage Life*'s goal is to enhance and preserve the quality of the cottage experience. The magazine and website combine authoritative service writing and award-winning journalism, exploring the issues, people, and places that define life on the waterfront. An iconic Canadian publication for 25 years, *Cottage Life* has won more than 125 national and international awards.

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Cottage Life Media Inc.
54 St. Patrick St.
Toronto, ON
M5T 1V1

Cottage Life

**Director of Content Development** Penny Caldwell
**Special Projects Editor** Martin Zibauer
**Writers** Allan Britnell, Penny Caldwell, Jackie Davis

**Digital Director** Sue Haas
**Digital Coordinator** Jenna Wootton
**Summer Student** Sarah MacMillan

**Art Director** Kim Zagar
**Cover Designer** Matt Filion

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**President & Chief Executive Officer** Al Zikovitz

# About the Publisher

**Cottage Life Media Inc.**
54 St. Patrick St.
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M5T 1V1
cottagelife.com